

Jamestown Coal-Fired Power Plant

**Unnecessary, Uneconomic,
Un-environmental**

Walter Simpson

Clean Energy for Jamestown

<http://www.cleanenergyforjamestown.com/>

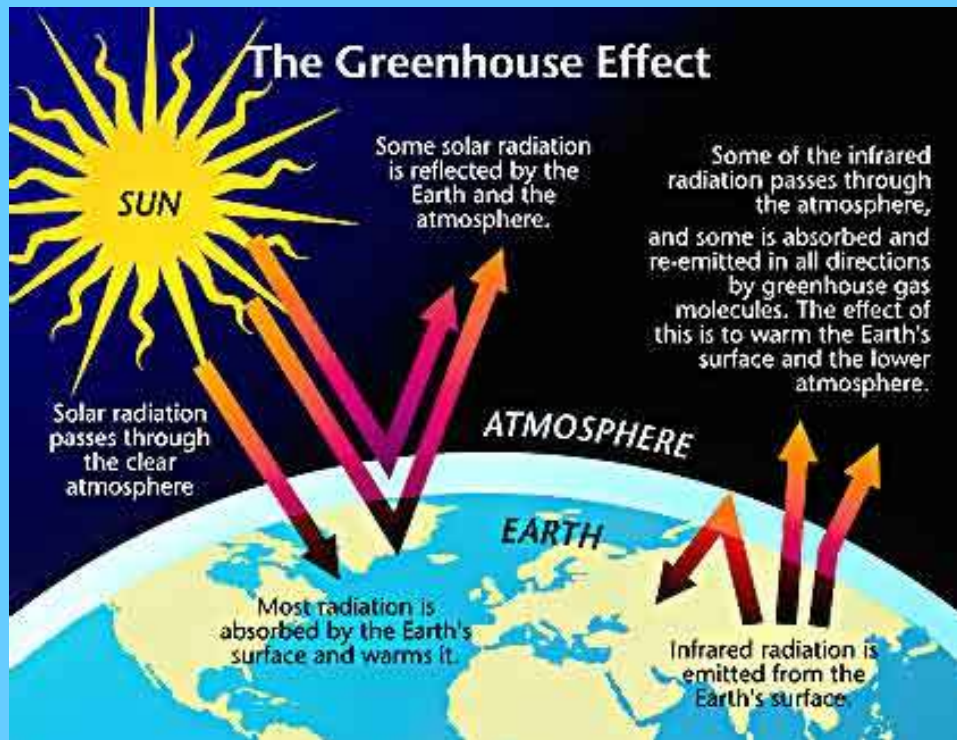
Climate Change Basics

- Global warming is real and its happening
- It's caused by human activity
- The consequences are serious
- It is not too late to do something about it...



Global Warming/Climate Change

- Caused by greenhouse gases trapping heat

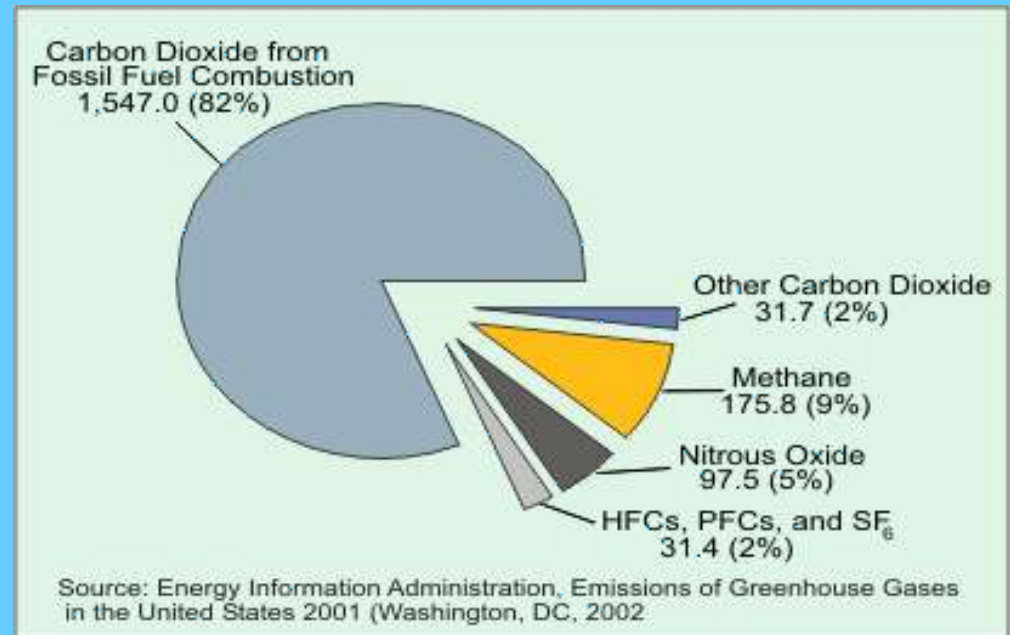


Just like glass traps heat in a real greenhouse



Greenhouse Gases

- Carbon dioxide
- Methane
- Nitrous oxide
- Chlorofluorocarbons



It's primarily an energy problem

Consequences of Climate Change



APRIL 3, 2006 www.time.com AOL Keyword: TIME

SPECIAL REPORT GLOBAL WARMING

TIME

**BE WORRIED.
BE *VERY* WORRIED.**

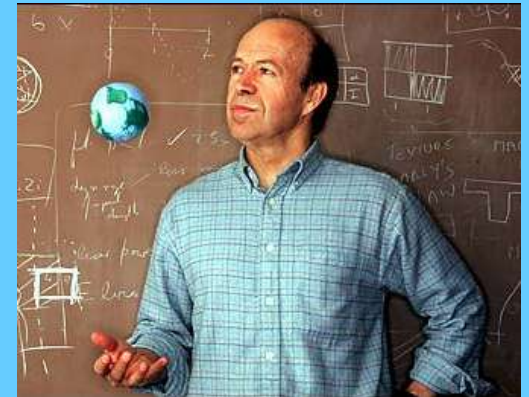
Climate change isn't some vague future problem—it's already damaging the planet at an alarming pace. Here's how it affects you, your kids and their kids as well

EARTH AT THE TIPPING POINT
HOW IT THREATENS YOUR HEALTH
HOW CHINA & INDIA CAN HELP
SAVE THE WORLD—OR DESTROY IT
THE CLIMATE CRUSADERS

Urgency and Seriousness

- "I think we have a very brief window of opportunity to deal with climate change ... no longer than a decade, at the most."

(Jim Hansen, September, 2006)



- We are on the brink of tipping points.
- The safe level of CO₂ is 350 ppm.

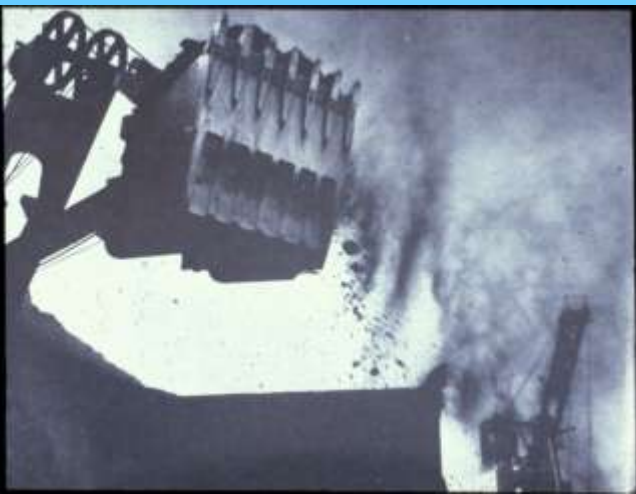
Climate Solutions

- Hansen's Big Three
 - Stop burning coal
 - Put a price on carbon
 - Get serious about efficiency and renewables
- What about nuclear?
- What about “clean coal”??

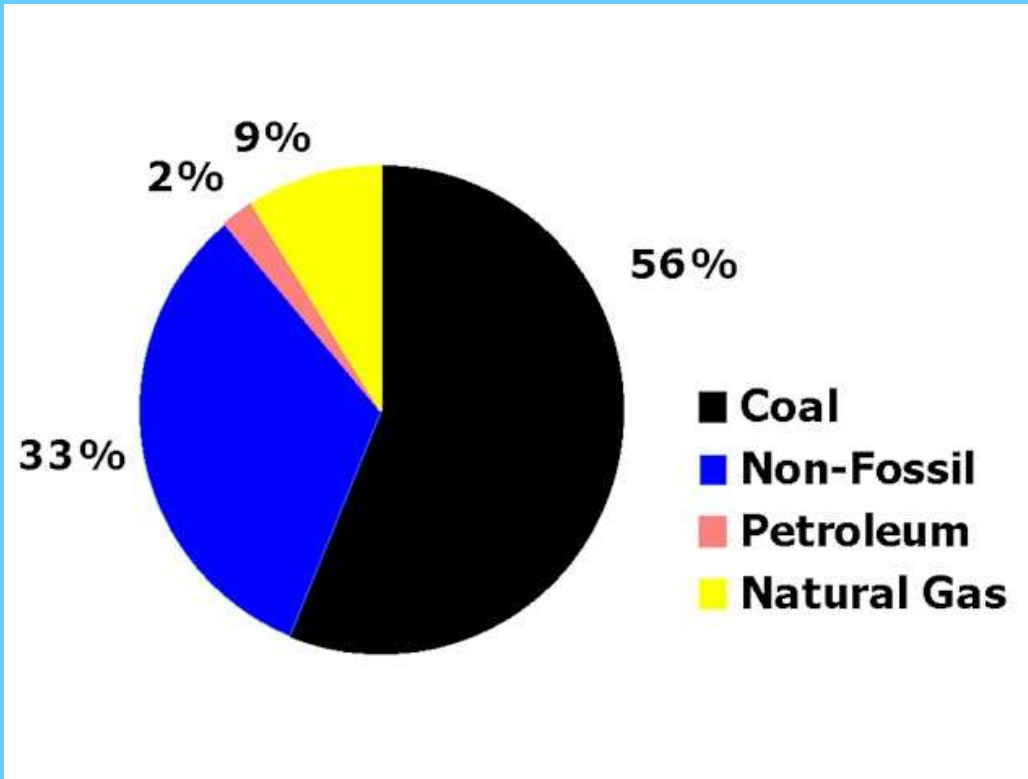


Not All Fossil Fuels Are Equal

- From best to worst
 - Natural gas
 - Oil
 - Coal (most carbon/BTU)



Reliance on Coal



Coal provides just 10% of Jamestown ratepayer electric needs!

Coal power plants account for ~55% of generation in the U.S. and produce ~90% of CO2 emissions from electric utilities.

“Clean Coal”?

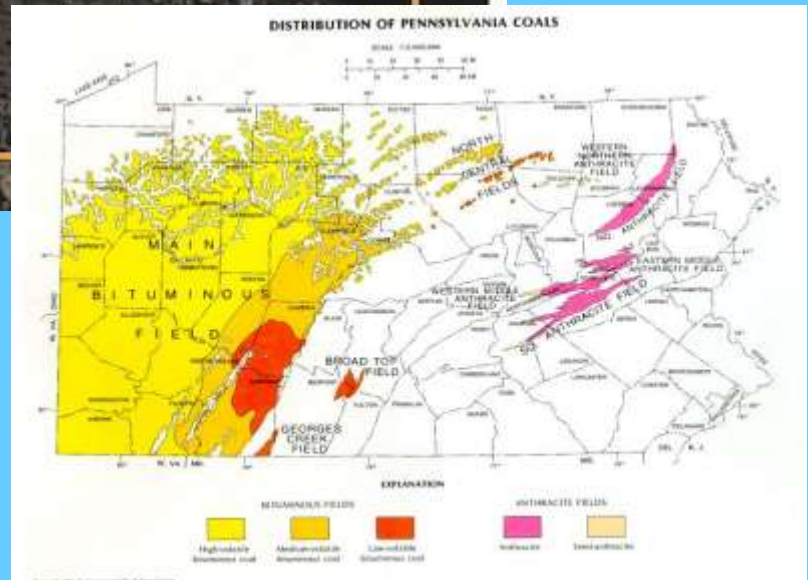
- Environmentalists are skeptical
- Must address
 - Greenhouse gas emissions from burning coal
 - Damage done by coal mining



Mountain Top Removal Coal Mining

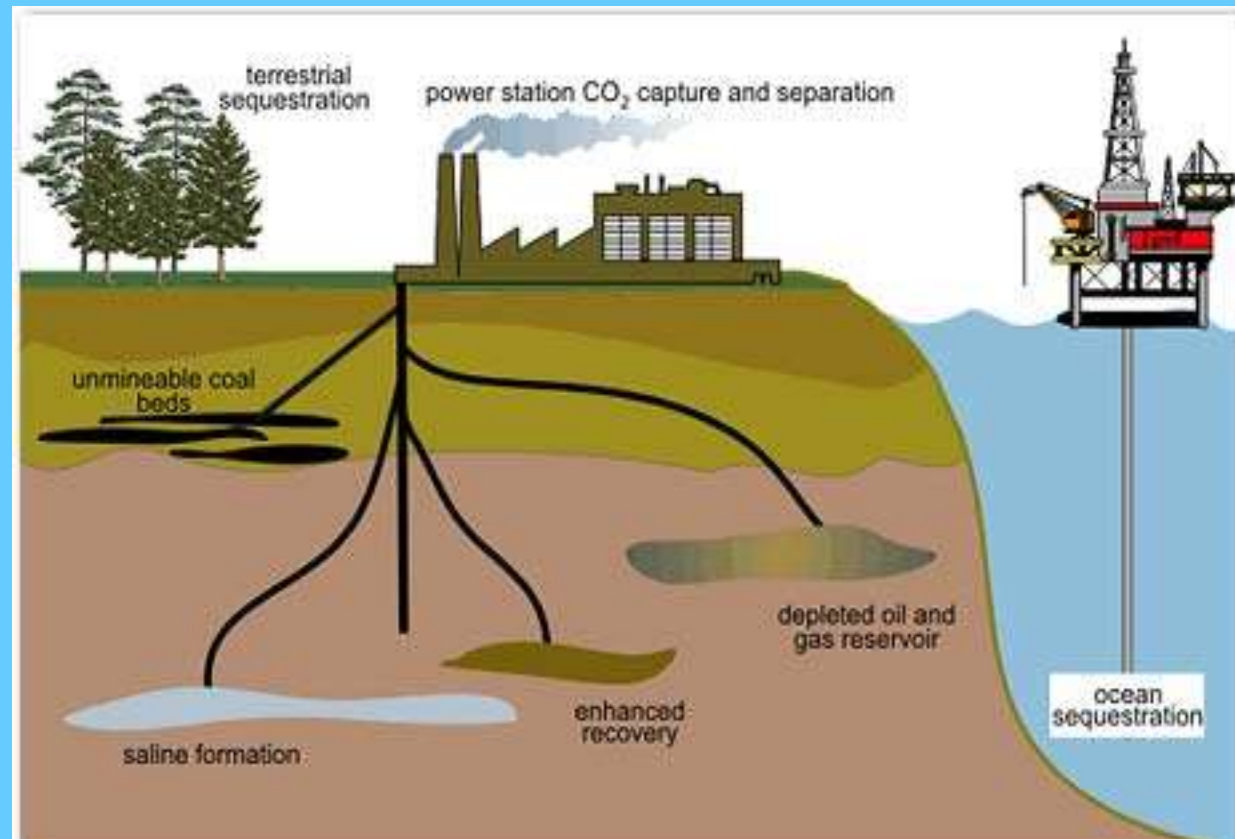


P E N N S Y L V A N I A



Capturing and Storing Carbon Dioxide?

- Untested
- How well will it work?
- Risky?
- How much will it cost?



Best CCS Method?



Jamestown BPU Proposal

The Positive

- Project has evolved
 - No check on CO₂ emissions → temporary CCS demonstration → permanent CCS?
- Governor David Paterson wants:
 - CCS to be permanent
 - Plan to hold ratepayer harmless of costs of CCS
 - Effective energy efficiency program



Jamestown BPU Proposal

The Negative

- The plant is not needed
- CCS performance standard is inadequate
- No practical way to hold ratepayers harmless
- Staggering cost – as high as \$500 million
- Costly power will substantially and needlessly raise electric rates
- Costly power will be too expensive to sell to non-ratepayers without incurring huge losses
- Annual state subsidy would be required or Jamestown could go bankrupt

Recent Setbacks

- Governor's Jamestown CCS bill blocked in State Assembly; no action in the Senate
- Test drilling found natural gas
- DOE decision not to fund Praxair-sponsored Oxy-Coal Alliance
- Praxair and UB pull-out



Clean Energy for Jamestown

Groups Opposing New Jamestown Coal Plant

- Alliance for Clean Energy NY
- American Lung Association in NY
- Campus Climate Challenge, SUNY Fredonia
- Catholic Care for Creation Committee of Buffalo
- Citizens Campaign for the Environment
- Clean Air Coalition of WNY
- **Earthjustice**
- Environmental Advocates of NY
- Global Warming Action Network, Syracuse
- Great Lakes United
- Jamestown Area Concerned Citizens
- **Natural Resources Defense Council**
- New York Interfaith Power & Light
- New York Public Interest Research Group
- Northeast Sustainable Energy Association
- Physicians for Social Responsibility, Washington, D.C.
- **Sierra Club, National Beyond Coal Campaign**
- Sierra Club Atlantic Chapter
- Sierra Club Niagara Group
- UB Environmental Network
- WNY Climate Action Coalition
- WNY Sustainable Energy Association

**COST OF POWER
for Jamestown
Board of Public Utilities
Electricity Supply Options**

**Proposed Coal-Fired Power Plant
Is Most Expensive Option
Even with Federal Subsidies**

September 17, 2009

**Prepared for Clean Energy for Jamestown under a grant from
the Sierra Club Beyond Coal Campaign with Research by
Lake Effect Energy**

Cost of Power

Electrical Production Cost Comparison for JBPU Supply Options

Electricity Source	Cost (\$/kWh)
• Low Cost NYPA	\$0.022 (delivered)
• Energy Efficiency	\$0.030
• NYISO Grid	\$0.06
• Biomass	\$0.070 to \$0.090
• Wind Energy	\$0.080 to \$0.093
• Natural Gas	\$0.110 to \$0.160
• Coal (Base Plant)	\$0.140 to \$0.190
• Coal with CCS	\$0.220 to \$0.270

Low Cost NYPA Hydro Power

- 2008, average of 55.8 MW
- Represents 90% of the electricity consumed by JBPU ratepayers
- $72.28 \text{ MW} \times \text{Load factor} = \text{kWh received}$
 - Load factor is “**average MW**” / “**peak MW**”
- Improve load factor → More NYPA power
- Address electric space heating and implement energy efficiency during peak consumption periods



Energy Efficiency

- National experience: 3 cents/kWh
- NYSERDA experience
 - 3.9 cents/kWh - TOTAL
 - 1.3 cents/kWh - INCENTIVE
- Can that be done in Jamestown?
 - Jamestown has generally low rates
 - But much opportunity
- How serious is new efficiency program?
 - Role of tax equivalent payments



NYISO Grid Power

- Average 2007 cost: \$0.053/kWh
- Average 2008 cost: \$0.059/kWh
- Will it remain a low cost option?
 - Western Zone has excess supply
 - Statewide efficiency programs will suppress demand



Biomass

- National experience: \$0.07 to \$0.09/kWh
- Generate electricity and heat
- Theoretically carbon neutral
- Fuel can be sustainably produced
- JBPU has already confirmed fuel supply



Wind Energy

- \$0.08 to 0.093/kWh
- Location and financing variables
- High first cost; zero fuel costs
- Pollution-free



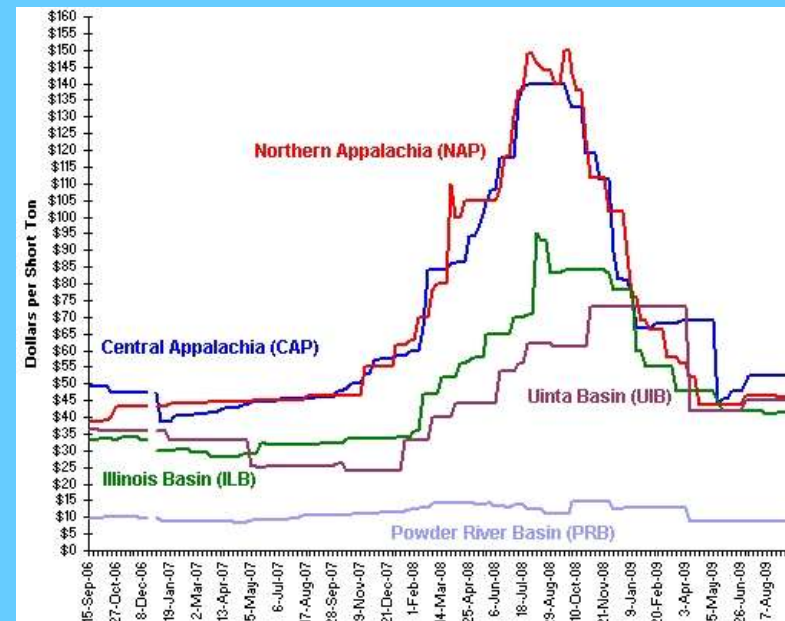
Natural Gas

- \$0.11 to \$0.16/kWh
- Expensive but . . .
 - Use existing JBPU gas turbine
 - Generate electricity and heat
 - Combined cycle?



Coal (Base Plant)

- \$0.14 to \$0.19/kWh
- Assumes all CCS costs – D&C and operating costs – are paid by others
- Range due to coal price volatility
- Why so expensive?
 - Small size of proposed plant
 - \$4 million/MW vs. \$1.56/MW national average



Criticism

BPU (David Leathers):

- Only looking at current costs and not future costs
- URS study cost of power information is inaccurate
 - URS used default values for inputs instead of BPU-specific values



Our Response

- Comparing current power production costs is OK because all costs will rise in the future, and the one most likely to rise at fossil-fuel-based.
 - Efficiency and wind have no fuel costs
 - Reasonable to believe grid costs will be stable
 - The western zone grid has surplus power
 - Statewide energy efficiency efforts will reduce demand and thus mitigate price increases

Our Response

- Use of URS study?
 - BPU did pay \$200,000+ for it
 - What are the default and BPU values?
 - Why would they be different or much lower national default values?
 - What would URS methodology show if BPU-specific values were used?
- Why hasn't the BPU released its cost of power numbers?
- What are the correct cost of power numbers?

Coal with CCS

- Substantially adds costs because of electricity requirements of CCS
 - Oxygen production
 - Compression of CO₂ to liquid
 - Pumping to and injection in storage site
- 50 MW without CCS = 43 MW output
- 50 MW with CCS = 30 MW output
- Plus natural gas cost for O₂ generation

Criticism

Paterson Administration (Tom Congdon):

- This project will benefit the world by demonstrating CCS
- It's premature to be concerned about this project's economics
- It's mind-blowing that environmental groups oppose this project on economic grounds

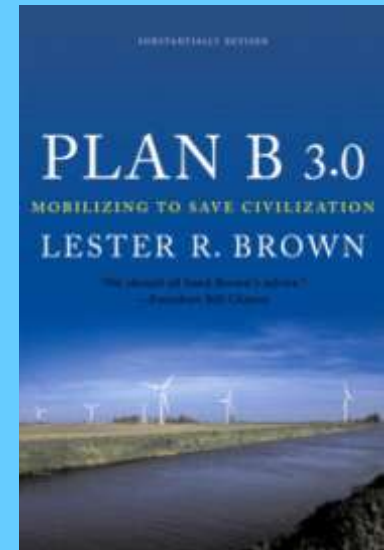


“Plan A” vs. “Plan B”

- Plan A
 - Build new \$400 - 500 million coal plant
 - Maximum cost
 - Maximum risk
- Plan B
 - Choose least cost alternatives
 - Least risk
 - Environmentally cleaner

A Sensible Plan B for Jamestown Electric Ratepayers

- Shut down the Carlson plant
- Meet the remaining 10% of the BPU's ratepayer electric load with:
 - Energy efficiency
 - Wind energy
 - Occasional purchases off the grid
- Provide heat to Jamestown's district heating loop by alternative means



How Much Will New Coal Plant Increase Electric Rates?

- Calculate by examining extra costs to ratepayers from:
 - Difference in electricity production costs
 - Anticipated JBPU losses from selling excess power to grid

10 Cents More per kWh

- Projected cost of power from coal plant (not counting CCS)

\$.14 – .19/kWh (coal \$50 – 150/ton)

- Average cost of alternatives

\$.06/kWh

- Say difference is \$.10/kWh

5.8 MW (average) X 8760 hrs/yr X \$.10

\$5.1 million

Potential Losses Selling Excess Power to Grid

- Output of 50 MW plant with CCS = 30 MW
- Assume 90% capacity factor = 27 MW
- Amount to be sold to non-ratepayers:
 $27 \text{ MW} - 5.8 \text{ MW} = 21.2 \text{ MW}$ or **78.5%**
- Assuming \$.10/kWh difference between cost to produce and price to sell
- Anticipated loss of off-system sales:
- $21.2 \text{ MW} \times 8760 \times \$.10/\text{kWh} = \mathbf{\$18.6 \text{ million/yr}}$
- Assumes non-ratepayers are held harmless of addition costs associated with CCS

Extra Costs = Higher Rates

- **Extra Costs**

- \$5.1 M + \$18.6 M = \$23.7 million/year
- \$1,000+ extra cost per ratepayer
- Who pays?

- **Higher Rates**

- Distribute extra costs over all kWhs consumed by ratepayers
- \$23.7 million/535 million kWh = **\$0.044/kWh**
- Assumes all CCS costs are covered by others

Let's Say We Are Wrong

- Assume differential cost is only 5 cents
- Cost of power from the coal plant is 11 instead of 16 cents per kWh
- **Extra Costs**
 - \$11.85 million/year
 - \$500+ extra cost per ratepayer
- **Higher Rates**
 - \$11.85 million/535 million kWh = **\$0.022/kWh**
 - Assumes all CCS costs are covered by others

Why Pursue Maximum Cost, Maximum Risk Option?

- Coal power plant history
- Tax equivalent payments
- Power plant jobs
- Politics
- Misinformation
 - District heating
 - Jobs and economic revitalization

Working for a Solution

- Locally, ratepayers must challenge Mayor Teresi and JBPU
- Statewide, environmental community will:
 - Challenge DOE funding applications
 - Challenge enabling state legislation
 - Challenge political leaders who back coal plant
 - Insist that alternatives be evaluated through the state SEQRA process
 - Seek PSC prudence review
 - Challenge in court as a last resort

Will this Coal Plant Be Built?



Probably Not

For More Information

Walter Simpson
enconser@buffalo.edu

Clean Energy for Jamestown

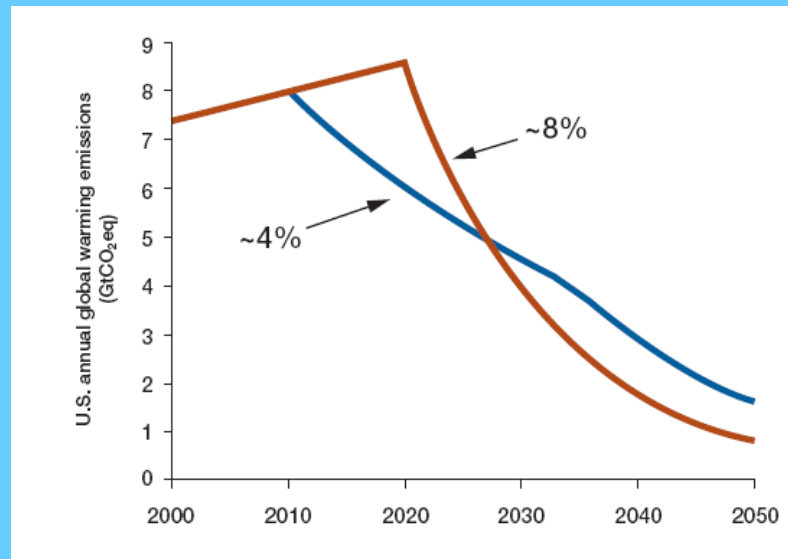
<http://www.cleanenergyforjamestown.com/>

Kyoto vs. What Is Needed

- Over 170 countries – But NOT the U.S.
- 5% reduction in greenhouse gases compared to 1990 levels by 2012
- To avoid more than a 2 degree C rise:
 - Reduce GHG emissions globally by 50% by 2050
 - Reduce by 80% by 2050 in advanced industrial economies
 - 450 ppm vs. 350 ppm

Easier If We Begin Sooner

- Do-able glide path vs. crash and burn?!



- Is either path possible?

Jamestown's Reliance on Coal

- Samuel A. Carlson coal-fired power plant
 - Source of community pride as well as electricity and heat
 - Near the end of its life
 - Impact on electric rates?
 - Need to be replaced?



Rate Impact of Self-Generation

- 90% of ratepayer electric needs are met by \$0.022/kWh NYPA hydro power
- Yet JBPU residential electric rates are \$0.068/kWh
- How possible?



Need for Self-Generation?

- Carlson plant has been down since April – anybody notice?
- There are other ways to meet the 10% of ratepayer electric load not already met by NYPA power
- New coal plant would produce much more expensive power than the Carlson plant

WNY “Clean Coal” Projects

- NRG Huntley IGCC – DEAD – Too Costly
- Jamestown BPU – Endorsed by Gov. Paterson on June 10, 2008

